FACE INVESTIGATION

SUBJECT: Utilities Worker Dies After Being Pinned in a Pulpwood Belt Conveyor at a Paper Company

SUMMARY: On November 7, 1997, a 46-year-old male utilities worker (the victim) died after being pinned between a wall and chute frame of a belt conveyor at a paper company. The conveyor was part of a belt system used to carry waste wood chips and bark from a truck dumping site to a steam plant where the waste is burned. The conveyor started and stopped automatically as fuel was needed by the steam plant. The victim had apparently entered the enclosed area where the conveyor pulley was located to tighten the conveyor belt. This was a task he performed routinely while the conveyor was running. It appears the victim either stepped or fell onto an unguarded section of the moving conveyor. A co-worker found the victim after searching for him when he did not take his lunch break. When the co-worker entered the conveyor area, he saw the victim's body, pinned between a wall, the belt and the metal chute frame that extended over the belt. The belt was not moving, so the co-worker tried to free him. This caused the belt to move, so he stopped and used his radio phone to contact the control room to stop the belt. He also called for emergency medical services. The EMS first responder arrived in about one minute. Co-workers and EMS responders used a chain to lift the conveyor belt off the pinned portion of the victim's body, so he could be moved from the area. The coroner pronounced the victim dead at the scene. The FACE investigator concluded that, to prevent similar occurrences, employers should:

! **consider fitting belt conveyors with an mechanical, switch-activated conveyor management system that automatically adjusts belt tension and tracking.**

! **install guards on belt conveyors wherever personnel may have contact with the moving parts.**

! **ensure that lockout/tagout (LOTO) programs cover all workers while they perform adjustments that place them in contact with moving parts of operating equipment.**

INTRODUCTION:

On November 7, 1997, a 46-year-old male utilities worker died after being pinned in a wood conveyor at a paper mill. The Wisconsin FACE field investigator was notified by the Workers' Compensation Division on November 12, 1997. On December 17, 1998, the field investigator visited the company site and interviewed the employer's management representative and the safety manager. The investigator was not able to view the incident site because the conveyor would need to be shut down to allow entry to the area, causing lengthy disruption of operations. The FACE investigator obtained the death certificate, and the coroner's and police reports.

The incident occurred at a large paper mill that produces a variety of lightweight and specialty paper products. The paper company has mills at four sites in North America, and employed about 500 people at the incident site.

The company had a safety director and an established safety program that included policies on lockout /tagout. The written lockout procedure for the conveyor where the incident occurred did not specify use of the procedure for activities routinely performed by the utilities worker, including belt tightening operations. The victim was a

member of the safety steering committee. Safety meetings were conducted for the maintenance department monthly. The mill site had one fatality, about 20 years ago.

The victim had been employed at the paper mill for twenty-four years. He had been trained for his job duties through a combination of on-the-job and classroom activities. The victim had successfully completed an eight-hour OSHA safety training course, which included lockout / tagout requirements.

INVESTIGATION:

On November 7, 1997, a 46-year-old male utilities worker (the victim) died after being pinned against a metal frame and a conveyor belt at a paper company. The conveyor was part of a belt system used to carry waste wood chips and bark from a truck dumping site to a steam plant where the waste was burned. Electric motors provided power to head and tail belt pulleys to start and stop the movement of the conveyor. An automatic switch in a control room turned the pulley motors on when fuel was needed by the steam plant boiler. The head and tail pulley faces were 56 inches wide, while the belt was 54 inches wide. After the conveyor operated for several hours, the belt tended to the pulley face. A utilities worker would adjust the belt by tightening nuts on the tail pulley while the conveyor was in operation, and observe the belt to determine if the tension was correct. He would be positioned on a narrow walkway, next to the steel beam where the pulley was mounted. The belt was unguarded in the area adjacent to the beam. The victim routinely performed this procedure in about 30 minutes, on a daily basis. The company had a LOTO program, but it did not cover the task of belt adjustment by utilities workers.

On the morning of the incident, the victim performed his routine activities. Before his lunch break, he entered the enclosed area where the conveyor was located to tighten the conveyor belt. Although there were no witnesses to the event, it appears the victim either stepped or fell onto an unguarded section of the conveyor belt. A co-worker found the victim after searching for him when he did not take his lunch break. When the co-worker entered the conveyor area, he saw the victim's body, pinned between a wall, the belt and the metal chute frame that extended over the belt. The belt was not moving, so the co-worker tried to free him. This action caused the belt to begin to move, so he stopped and used his radio phone to call for emergency medical services. The EMS first responder arrived in about one minute. Co-workers and EMS responders used a chain to lift the conveyor belt off the pinned portion of the victim's body, so he could be moved from the area. The coroner pronounced the victim dead at the scene.

CAUSE OF DEATH: The coroner's report listed the cause of death as massive trauma to the chest cavity, with spinal transection.

RECOMMENDATIONS/DISCUSSION

Recommendation #1: Employers should consider fitting belt conveyors with a mechanical,

switch-activated conveyor management system that automatically adjusts belt tension and tracking.
Discussion: Conveyor systems manufacturers can design or approve conveyor management systems that monitor and /or correct problems such as belt misalignment. Combinations of sensors, switches, and adjustment devices will automatically control belt diversions and tension fluctuations. This eliminates the need for workers to routinely monitor belt action and conduct manual adjustment activities that may place them in contact with moving equipment. Continuous monitoring and adjustment can also eliminate or minimize belt stoppages and damage that may occur if workers are not present when faulty belt tracking occurs.

Recommendation #2: Employers must install guards on belt conveyors wherever personnel may have contact with moving parts.
Discussion: The victim apparently contacted the unguarded conveyor as it was moving, or it began to move after he stepped or fell onto it. He was unable to get off before he was pulled and pinned between a wall, the belt and the metal chute frame that extended over the belt. A guard that prevented inadvertent or intentional contact with the moving conveyor belt would have prevented the employee from falling or stepping on the belt. An interlock that interrupts power to the conveyor when the guard is disabled would provide additional safety.

Recommendation #3: Employers should ensure that lockout/tagout (LOTO) programs cover all workers while they perform adjustments that place them in contact with moving parts of operating equipment.
Discussion: The LOTO program at this company did not cover the victim while he performed the routine belt adjustment operation. Moving equipment parts present hazards to workers, even when the operations performed on them are routine and repetitive. An effective program ensures that unguarded machines and equipment are locked out or blocked off before any maintenance, inspection, cleaning, adjustment or servicing of equipment that requires close contact with the equipment is conducted.